

SENATE, NO. 2493

[Senate, June 21, 2010 - New draft of Senate, No. 1481 reported from the committee on Telecommunications, Utilities and Energy.]



The Commonwealth of Massachusetts

IN THE YEAR OF TWO THOUSAND AND TEN

AN ACT TO REDUCE LIGHT POLLUTION.

Be it enacted by the Senate and House of Representatives in General Court assembled,

And by the authority of the same, as follows:

1 **SECTION 1.** Chapter 85 of the General Laws is hereby amended by inserting after
2 section 36 the following sections:-

3 Section 37. As used in sections 37A to 37C, inclusive, the following words shall, unless
4 the context clearly requires otherwise, have the following meanings:-

5 "Direct light", light emitting generally in a downward direction by a lamp, off a reflector, or
6 through a refractor of a luminaire.

7 "Fully shielded luminaire", a luminaire that allows no direct light from the luminaire above a
8 horizontal plane through the luminaire's lowest light-emitting part, in its mounted form.

- 9 "Glare", direct light emitted by a luminaire that causes reduced visibility of objects or
10 momentary blindness.
- 11 "Illuminance", the luminous power incident per unit area of a surface, as measured in lux
12 (lumens per square meter) or foot-candles (lumens per square foot).
- 13 "Lamp", the component of a luminaire that produces light.
- 14 "Light pollution", artificial light directed, reflected, or scattered upward into the atmosphere.
- 15 "Light trespass", light emitted by a luminaire that shines beyond the boundaries of the property
16 on which the luminaire is located.
- 17 "Lumen", a specific standard unit of measurement of luminous flux.
- 18 "Luminaire", a complete lighting unit, including a lamp or lamps together with the parts designed
19 to distribute the light, to position and protect the lamps, and to connect the lamps to the power
20 supply.
- 21 "Municipal funds", any bond revenues or any money appropriated or allocated by the governing
22 body of a town or city within the Commonwealth.
- 23 "Outdoor light fixtures", outdoor artificial illuminating devices, permanently installed or
24 portable, used for flood-lighting, roadway and area lighting, general illumination, or
25 advertisement.
- 26 "Permanent outdoor luminaire", any fixed luminaire or system of luminaires that is outdoors and
27 that is intended to be used for seven days or longer.
- 28 "Roadway lighting", permanent outdoor luminaires that are specifically intended to illuminate
29 roadways for automotive vehicles.
- 30 "State funds", any bond revenues or any money appropriated or allocated by the General Court.

31 Section 37A. (a) No state or municipal funds shall be used to install any new permanent
32 outdoor luminaire or to replace an existing permanent outdoor luminaire unless the following
33 conditions are met:

- 34 (1) The new or replacement luminaire is a fully shielded luminaire when the rated output of
35 the lamp is greater than one thousand eight hundred (1800) lumens;
- 36 (2) If a lighting recommendation or regulation applies, the minimum illuminance specified
37 by the recommendation or regulation is used;
- 38 (3) If no lighting recommendation or regulation applies, the minimum illuminance adequate
39 for the intended purpose is used with consideration given to recognized standards,
40 including, but not limited to, recommended practices adopted by the illuminating
41 engineering society of North America (IESNA);
- 42 (4) For roadway lighting unassociated with intersections of two or more streets or highways,
43 a determination is made by the department of highways that the purpose of the lighting
44 installation or replacement cannot be achieved by installation of reflectorized roadway
45 markers, lines, warnings or informational signs, or other passive means; and
- 46 (5) Adequate consideration has been given to the conservation of energy and to the
47 minimization of glare, light pollution, and light trespass.

48 The requirements of this section shall not apply in any of the following circumstances, settings or
49 locations:

- 50 (1) a federal law, rule or regulation preempts state law;
- 51 (2) the outdoor lighting fixture is used on a temporary basis by emergency personnel
52 requiring additional illumination for emergency procedures or used by repair personnel
53 on a temporary basis for road repair;
- 54 (3) navigational lighting systems at airports and other lighting necessary for aircraft safety;
- 55 (4) special events or situations that may require additional illumination, including, but not
56 limited to, sporting events and the illumination of historic structures, monuments, or
57 flags; provided however, that all such illumination shall be selected and installed to shield
58 the lamp used from direct view to the greatest extent possible, and to minimize light
59 pollution and light trespass;

60 (5) any urban area where there is high night-time pedestrian traffic which has been examined
61 by an engineer employed by the commonwealth and experienced in outdoor lighting and
62 deemed to be an area where the installation of luminaires other than those that are fully
63 shielded is necessary for safety;

64 (6) a state prison, county house of correction or county jail; or

65 (7) when a compelling safety interest exists that cannot be addressed by any other method.

66 (b) No public utility company may install or replace a permanent outdoor luminaire for roadway
67 lighting, if the cost of operating such luminaire is paid for by municipal funds, unless:

68 (1) the luminaire is designed to maximize energy conservation and to minimize light
69 pollution, glare and light trespass;

70 (2) the luminaire's illuminance is equal to the minimum illuminance adequate for the
71 intended purpose of the lighting; and

72 (3) for a luminaire with a rated output of more than 1800 lumens used on municipal roads,
73 such luminaire is a full cutoff luminaire.

74 (c) Off-street business and residential lighting may not direct spotlights of greater than 1800
75 lumens onto roadways in such a manner that would visually impede drivers.

76 Section 37B. The division of energy resources, in consultation with the department of
77 highways, shall promulgate regulations to implement and enforce this section, including a system
78 to ensure that the use of state funds for roadway lighting complies with the requirements set forth
79 herein. Said regulations shall include the establishment of a waiver process, to be administered
80 by the secretary of administration and finance or his designee, whereby a state agency, division
81 or department may apply for and may be granted an exemption by said secretary from the
82 requirements of this section on the grounds that a bona fide operational, temporary, safety or
83 specific aesthetic need exists to an extent that warrants such an exemption or upon the
84 establishment by said agency, division or department that the installation and use of the
85 permanent outdoor luminaries required by this section will not be cost effective over the
86 expected use life of said luminaries.

87 Section 37C. The department of highways shall: (a) review and update its warranting and
88 other criteria for roadway lighting, to demonstrate that its current standards and procedures
89 conform to commonly accepted best practices; (b) explore how costs can be reduced by replacing
90 existing fixtures luminaires with lower-wattage, fully shielded luminaires or by eliminating
91 roadway lighting altogether where appropriate; (c) report its findings to the department of energy
92 resources annually beginning on August 31, 2012.

93 **SECTION 2.** The provisions of this act shall take effect as of November 1, 2011.